Claims:

1. A device for piercing the stratum corneum of a body surface to form pathways through which an agent can be introduced or withdrawn, comprising:

a sheet having at least one opening therethrough and a plurality of blades extending downward therefrom, at least one of the plurality of blades having an anchor for anchoring the device to the body surface.

2. The device of Claim 1 wherein the anchor is selected from the group consisting:

(i) a projection extending out from the at least one blade;

(ii) a barb;

(iii) at least one opening extending through the at least one blade;

(iv) an adhesive on a body contacting surface of the sheet and on at least one surface of at least one of the plurality of blades;

(v) each of the blades having an axis, the blades being oriented so that the blade axes are substantially parallel and the axes form an angle of about 1° to about 89° relative to the sheet;

(vi) each one of the plurality of blades defines essentially a plane and wherein the anchor comprises a portion of the plurality of blades being oriented at an angle of about 90° with respect to a remaining portion of the plurality of blades; and

(vii) each one of the plurality of blades defines essentially a plane and wherein the anchor comprises a portion of the plurality of blades being oriented at an angle within a range of about 1° to about 89° with respect to a remaining portion of the plurality of blades.

3. The device of Claim 2, wherein the projection extends out from a plane defined by the at least one blade.

4. The device of Claim 3, wherein the projection is a prong.

5. The device of Claim 2, wherein the projection is integral with an edge of the at least one blade and in a plane defined by the at least one blade.

6. The device of Claim 1, further comprising a therapeutic agent delivery device connected to the piercing device and positioned to deliver a therapeutic agent through the opening to the body surface, the agent delivery device being selected from the group consisting of an electrotransport device, a passive diffusion device, an osmotic device, and a pressure driven device.

7. The device of Claim 6, wherein the agent comprises a polypeptide or protein.

8. The device of Claim 1, further comprising a sampling device connected to the piercing device and positioned to sample a substance from the body surface through the opening, the sampling device being selected from the group consisting of a reverse electrotransport device, a passive diffusion device, an osmotic device, and a negative pressure driven device.

9. The device of Claim 8, wherein the sampled substance is selected from the group consisting of body electrolytes, illicit drugs and glucose.

10. The device of Claim 1, wherein a portion of the plurality of blades are located along a periphery of an opening through the sheet.

11. The device of Claim 1, wherein a portion of the plurality of blades are located along a periphery of a plurality of openings through the sheet.

12. The device of Claim 11, further comprising a plurality of second openings through the sheet being spaced between the plurality of openings.

13. The device of Claim 1, wherein the device has about 600 to about 1000 blades/cm2.

14. The device of Claim 1, wherein the device has at least about 800 blades/cm2

15. The device of Claim 1, wherein at least a portion of the plurality of blades have a length sufficient to pierce the stratum corneum of the body surface to a depth of at least about 25 μm.

16. The device of Claim 1, wherein each of the plurality of blades is oriented approximately perpendicular to the sheet.

17. The device of Claim 1, wherein each of the plurality of blades is oriented at an angle in the range of about 1° to about 89° to the sheet.

18. The device of Claim 1, wherein each of the plurality of blades is oriented at an angle in the range of about 10° to about 60° to the sheet.

19. The device of Claim 1, wherein at least a portion of the plurality of blades have a thickness in the range of about 7 μm to about 100 μm.

20. The device of Claim 1, wherein at least a portion of the plurality of blades have a thickness in the range of about 25 μm to about 50 μm.

21. The device of Claim 1, wherein the plurality of blades is composed of a material selected from the group consisting of metals, metal alloys, glasses, ceramics and rigid polymers.

22. The device of Claim 1, wherein the sheet and the plurality of blades are substantially impermeable to the passage of the agent.

23. The device of Claim 1, wherein the plurality of blades are thinner than the sheet.

24. A device for piercing the stratum corneum of a body surface to form pathways through which an agent can be introduced or withdrawn, comprising:

a sheet having a plurality of openings therethrough, at least one of said openings having a plurality of blades located along a periphery thereof and extending downward from the sheet, and an anchor for anchoring the device to the body surface.

25. The device of Claim 24, wherein the anchor is selected from the group consisting:

(i) a projection extending out from at least one blade;

(ii) a barb on a blade;

(iii) at least one opening extending through at least one blade;

(iv) an adhesive on a body contacting surface of the sheet and on at least the plurality of blades;

(v) a portion of the plurality of blades being oriented at an angle of about 90° with respect to a remaining portion of the plurality of blades; and

(vi) each one of the plurality of blades defines essentially a plane and wherein the anchor comprises a portion of the plurality of blades being

oriented at an angle within a range of about 1° to about 89° with respect to a remaining portion of the plurality of blades.

26. The device of Claim 25, wherein the projection extends out from a plane defined by at least one blade.

27. The device of Claim 26, wherein the projection is a prong.

28. The device of Claim 25, wherein the projection is integral with an edge of the at least one blade and in a plane defined by the at least one blade.

29. The device of Claim 24, wherein the anchor comprises a plurality of openings extending through at least one blade.

30. The device of Claim 24, further comprising a therapeutic agent delivery device connected to the piercing device and positioned to deliver a therapeutic agent through the opening to the body surface, the agent delivery device being selected from the group consisting of an electrotransport device, a passive diffusion device, an osmotic device, and a pressure driven device.

31. The device of Claim 30, wherein the agent comprises a polypeptide or protein.

32. The device of Claim 24, further comprising a sampling device connected to the piercing device and positioned to sample a substance from the body surface through the openings, the sampling device selected from the group consisting of a reverse electrotransport device, a passive device, an osmotic device, and a negative pressure driven device.

33. The device of Claim 32, wherein the sampled substance is selected from the group consisting of body electrolytes, illicit drugs and glucose.

34. The device of Claim 24, further comprising a plurality of second openings through the sheet being spaced between the plurality of openings.

35. The device of Claim 24, wherein the device has about 600 to about 1000 blades/cm^2.

36. The device of Claim 24, wherein the device has at least about 800 blades/cm^2.

37. The device of Claim 24, wherein at least a portion of the plurality of blades have a length sufficient to pierce the stratum corneum of the body surface to a depth of at least about 25 μm.

38. The device of Claim 24, wherein each of the plurality of blades is oriented approximately perpendicular to the sheet.

39. The device of Claim 24, wherein each of the plurality of blades is oriented at an angle in the range of about 1° to about 89° to the sheet.

40. The device of Claim 24, wherein each of the plurality of blades is oriented at an angle in the range of about 10° to about 60° to the sheet.

41. The device of Claim 24, wherein the plurality of blades have a thickness in the range of about 7 μm to about 100 μm.

42. The device of Claim 24, wherein the plurality of blades have a thickness in the range of about 25 micrometers to about 50 micrometers.

43. The device of Claim 24, wherein each of the plurality of blades are composed of a material selected from the group consisting of metals, metal alloys, glasses, ceramics and rigid polymers.

44. The device of Claim 24, wherein the sheet and the plurality of blades are substantially impermeable to the passage of the agent.

45. The device of Claim 24, wherein the plurality of blades are thinner than the sheet.

46. A method for producing a device for piercing the stratum corneum of a body surface, the method comprising:

applying a layer of photo-resist to a first side of a sheet;

exposing the layer of photo-resist through a mask pattern for producing a plurality of blades;

etching exposed portions of the photo-resist and the sheet to produce the plurality of blades and openings through the sheet;

punching the plurality of blades through the openings such that the plurality of blades extend downward from the sheet; and

incorporating the device for piercing the stratum corneum into a delivery device or sampling device.

47. The method of Claim 46, wherein the photo-resist is a resist selected from the group consisting of wet resist and dry resist.

48. The method of Claim 46, wherein the etching step comprises spray etching.

49. The method of Claim 46, wherein the punching step comprises:

placing the sheet on a die having a plurality of openings corresponding to the plurality of blades and openings of the sheet; and

bending the plurality of blades through the openings to be substantially perpendicular to the sheet with a punch having a plurality of protrusions corresponding to the plurality of openings in the die and the plurality of openings of the sheet.

50. A method of transdermally sampling an agent, comprising:

a. placing a device on a body surface through which the agent is to be withdrawn, the device including a sheet having at least one opening therethrough and a plurality of blades extending downward therefrom whereby agent transmitting pathways are formed through the stratum corneum at the body surface, and a reservoir in agent-transmitting relation with the opening;

b. withdrawing the agent through the pathways and said opening; and

c. collecting the agent in the reservoir.

51. The method of Claim 50, wherein the sampled agent is selected from the group consisting of body analytes, electrolytes, blood gases, illicit drugs, licit drugs and glucose.

52. The method of Claim 50, further comprising:

connecting a sampling device to a side opposite of a side of the sheet having the blades extending downward therefrom, the sampling device being selected from the group consisting of a reverse electrotransport sampling device, a passive sampling device, an osmotic sampling device, and a negative pressure driven sampling device.

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